

GLOBECanada



GL**BE**
Canada



14th **GLOBE** 

Annual Partner Meeting and
Professional Development Workshop

Calgary, Alberta, CANADA

29 July - 3 August 2010



Exploring Climate through
GLOBE Student Research



The 14th GLOBE Annual Partner Meeting and PD Workshop hosted 147 delegates from 29 countries. Representation came from all 6 areas of the GLOBE Science Network.



Exploring Weather and Climate through Observations!

- **Full day investigations involved training at field sites located in and around the Calgary area. The focus was to transport oneself into the student inquiry process and included identification of GLOBE Protocols.**

14th

July 29 - Aug 3, 2010

GLOBE Annual Meeting

Calgary, Alberta, Canada



A Glimpse of Professional Development Workshop Field Sites

**(1). Biogeoscience Institute .. University of Calgary
(Kananaskis Field Station)**

(2). Cross Conservation Area

(3). Fish Creek Provincial Park

(4). Inglewood Bird Sanctuary





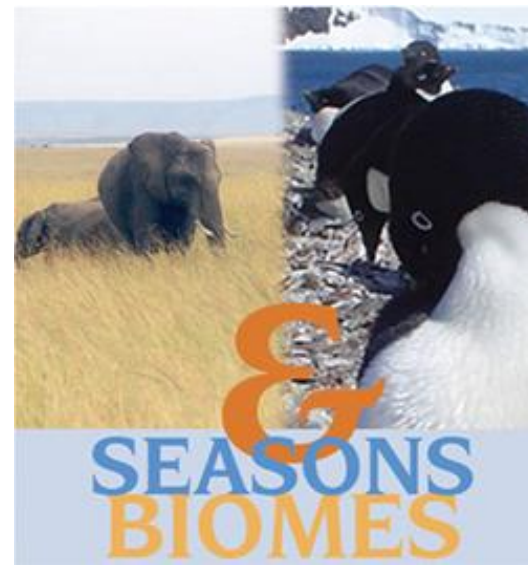
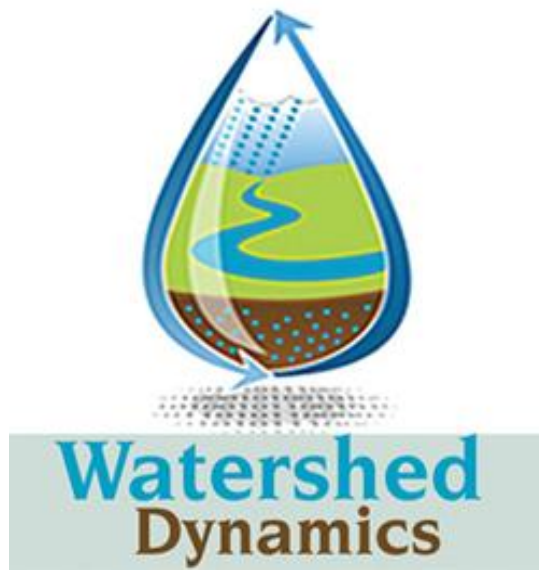








Participants had the opportunity to select one of five sessions on Earth System Science Projects. This included 4 GLOBE ESSPs as well as a session on NASA's CloudSat.





Several large group sessions allowed attendees to learn the current state of science with regard to climate and climate change.



Program sponsors welcomed delegates and shared information.



Dr. Graeme Stephens



GLOBE Student Climate Research Campaign
Engaging Youth to Understand Climate
Pathways to Climate Understanding



**An Opportunity
to
Share and Professionally Bond.**

**An Opportunity
to
Share and Professionally Bond.**



GLOBE TRINIDAD & TOBAGO P



UTT STUDENT AT WORK



GANGES MEETS THE NILE



POSTAL



US ECONOMIC ADVISOR & PETROBRAS REP



GLOBE AT TRINITY MALL



GLOBE IN EDUCATION



EDUCATION WITH GLOBE



INTERNATIONAL DIVISION The GLOBE Program

Dear Henry,

Thank you for your hard work on behalf of the GLOBE Program. Trinidad and Tobago serves as a model for the Caribbean and we hope that this new collaboration you are working on within the education, business and activities in the country. I am hopeful we can play a regional role, more that could take place in Trinidad.

Sincerely,
Dr. Teresa Kennedy
Director, International Division
GLOBE Program

GLOBE WELCOMES CPTT



GLOBE PARTNER TRINIDAD & TOBAGO

2.1 GLOBE Incarcerated to University



Significant Student-Scientist Research Projects within the CloudSat Education Network

Matt Rogers¹ and Deborah Vane²

¹ Colorado State University, Fort Collins, CO 2. Jet Propulsion Laboratory, Pasadena, CA

Corresponding Author: Matt Rogers (mrogers@colorado.edu)

The CloudSat Education Network (CEN)



As a primary element of the CloudSat mission (Stephens et al., 2006), the CloudSat Education Network (CEN) consists of 176 participating schools in 14 countries, ages 6-12.

Primary focus of outreach is to student education through participating research projects.

CEN schools trained in G2/86 Atmospheric Protocol, further with G2/86 program. Students and teachers receive special training in CloudSat-specific observations. CloudSat assigned each CEN school, assigns each every 10 days.

Public Education



One of the CloudSat-CEN webpages is dedicated to public education. It provides information for the CEN, data collected from CEN schools, for quality control, and for public education.

CloudSat-CEN webpages also provide information for the CEN, data collected from CEN schools, for quality control, and for public education.

Scientific Research using CEN Data



CEN collected data can be used as ground truth observations for improving satellite retrieval products (Rogers et al., 2006). In one comparison study, 18 most frequently observing CEN schools, provided data from June 2007 through June 2008. 2017 total observations from eight countries (Spain, New Zealand, Australia, United States, Germany, Cameroon, and India) for comparison to the CloudSat 3B-G2C3.03 product to ground truth satellite observations of cloud type.

Based on dates of available school observations, get 3B-G2C3.03 data for relevant dates. Use nearest 10km of 3B-G2C3.03 data (20km on either side of school) for comparison purposes.

100% complete and partial matches between our school data and the satellite derived data, consisting of 82 perfect matches and 16 partial matches. This represents 40% agreement between school and satellite derived data, compared to 44% for WMO comparisons (Wang and Sassen, 2001).

Use use CEN data to explore these issues, potentially improve satellite algorithm.

Student Designed Research

Students research projects combine knowledge gained from the CloudSat mission with science projects of local interest. The research projects are designed by students and teachers, and are presented at the CloudSat Education Network (CEN) conference. The research projects are presented at the CEN conference, and are presented at the CEN conference.

References

- Stephens, D. L., C. S. Y. Stephens, and J. S. Y. Stephens. 2006. The CloudSat mission. *Journal of Climate*, 19, 10, 1900-1910.
- Rogers, M., and D. Vane. 2006. The CloudSat mission. *Journal of Climate*, 19, 10, 1900-1910.
- Wang, J., and J. S. Y. Stephens. 2001. The CloudSat mission. *Journal of Climate*, 14, 10, 1900-1910.

LOOKING AHEAD

National Geographic FieldScopes will be performing both other citizen science activities in the future and building out FieldScopes and support student citizen science projects and across disciplines.

National Geographic FieldScopes, Indiana Dunes

FieldScopes is a 501(c)(3) nonprofit in which groups of parents and community members that identify and study local plants and animals species. National Geographic and partners launched a FieldScopes in a new park each year, leading up to the U.S. National Park Service Centennial in 2016.

In 2016, FieldScopes took place at Indiana Dunes National Lakeshore in Lake Michigan. FieldScopes was used to support the field investigations of students sampling in the park. Students collected and mapped data on species distribution, and analyzed patterns in the data sets in the classroom.

<http://FieldScopes.org> • <http://www.nationalgeographic.com/FieldScopes/fieldscopes>

FieldScopes

CITIZEN SCIENCE • SPATIAL INVESTIGATIONS • TECHNOLOGY-SUPPORTED

TECHNOLOGY-SUPPORTED SPATIAL INVESTIGATIONS

- ArcGIS Server 9.3 for dynamically serving web map layers
- Geo-processing tools for meaningful spatial investigations
- Client-side tools for a more robust user experience
- ArcGIS Online API highlighting great AGO team layers

TECHNOLOGY-SUPPORTED CITIZEN SCIENCE

- Community sharing of data via MS SQL Server with WebOb API
- Professional monitoring data from web services
- Mobile sharing using Mifare cards
- Built on Adobe Flex SDK

FieldScopes enables students to explore science concepts by providing both citizen science and spatial investigation tools. By using FieldScopes, students can explore data in a way that is both meaningful and fun. FieldScopes is a web-based platform that allows students to explore data in a way that is both meaningful and fun. FieldScopes is a web-based platform that allows students to explore data in a way that is both meaningful and fun.

NATIONAL GEOGRAPHIC

education



Environment



Earth



Ocean



Animals

**An Opportunity
to
experience and learn
about the
Canadian Mosaic.**



14th

GLOBE

Annual Partner Meeting
Professional Development Workshop

*Calgary, Alberta
Canada*

Exploring Climate Through GLOBE Student Research

29 July - 3 August 2010





**The Legacy Of The
14th GLOBE Annual Partner
Meeting and Professional
Development Workshop
to
GLOBE Canada**



1. Ralph Klein Park

Sid Andrews, Environmental Education Coordinator for the City of Calgary, attended the conference with several of his staff to find out more about GLOBE. Following the conference, he has decided that the new Environmental Educational Centre at Ralph Klein Park will work cooperative with GLOBE Canada on a number of GLOBE protocols in conjunction with its ecological programs because GLOBE has the potential to move learners from awareness to skills, actions and values. GLOBE Canada has been invited to give leadership in their curriculum planning and delivery.

- Man-made wetlands
- Learning gardens
- Wetland viewing areas
- Study stations
- Interpretive Trails
- Environmental Education Centre



2. Since the close of the 14th GLOBE Annual Meeting in Calgary, Dr. Kevin O'Conner, GLOBE Regional Contact for the provinces of Ontario and Quebec, has carried out GLOBE in-service with upwards of 120 pre-service teachers both at McGill University in Montreal and at the University of Ottawa



McGill University

University of Ottawa





Consulates:

[Calgary](#) | [Halifax](#) | [Montréal](#) | [Québec City](#) | [Toronto](#) | [Vancouver](#) |
[Winnipeg](#) | [Canada "North of 60"](#) | [Southwest Ontario Gateway](#)

3. United States Consul General Laura Lochman requested that Dr. Crystal Meriwether, Cultural Affairs Officer, US Embassy-Ottawa, and Michelle Cook, Public Affairs Officer for the US Consulate in Calgary organize a Digital Video Conference involving Representatives from all US Consulates/Embassy in Canada with Dr. Kennedy, Bill Batycky and Wendy Campbell to initiate discussions on how they can facilitate the growth of GLOBE schools in Canada ...February 08,2011.

4. Bob Sharp, Regional Coordinator for the Yukon, has continued to entice aboriginal youth to science learning by involving them in experiential learning based on the GLOBE Protocols. His efforts are being reflected in revisions presently being made to the newly created aboriginal program of studies.



5. Ian Waugh, Regional Contact for the Maritime Provinces, worked with Bill Batycky to create a template for promoting GLOBE Canada with potential sponsors in an effort to raise awareness of GLOBE Canada in the corporate community. It gives focus to letting sponsors know how they can benefit from supporting GLOBE Canada, rather than just on teachers and students.

Affiliation with GLOBE opens up a partnership with an international environmental education initiative that has a 16 year history and has a reputation of quality school programming.

Alignment with a positive, ground-breaking school program that makes use of technology to learn more about energy, hydrology, land cover, ecosystems and the environment holistically.

- **Visibility** through strong recognition of the sponsor on GLOBE Canada marketing materials, by displaying a logo or name on appropriate printed brochures, travelling displays going to teacher conventions, expos and workshops as well as web-sites and other deemed appropriate advertising.
- **Positions** sponsors to leave a footprint in the educational community, the scientific community and the social community while supporting our most precious living resource – kids.
- **Provides** association with positive images and values linked to space technology, energy balance, environmental sustainability, citizenship, literacy and active learning
- **Excitement** of being on the leading edge.

6. The Canadian Space agency hosted a CloudSat presentation at their Montreal headquarters focusing on students using GLOBE Atmosphere Protocols to “Ground-Truthing”.

